REMARKS

This application has been reviewed in light of the Office Action dated December 31, 2002. Claims 1-4, 8-12, 14-18, 20, 22, 23, and 24 are pending. Claims 5-7, 13, 19, and 21 have been cancelled, without prejudice or disclaimer of subject matter. Claims 1-3, 8-12, 14-18, 20, 22, and 23 have been amended to define more clearly what Applicants regard as their invention. New Claim 24 has been added to provide Applicants with a more complete scope of protection. Claims 1, 3, 9, 15, 17, 22, and 23 are in independent form. Favorable reconsideration is requested.

Claims 1-23 are rejected under 35 U.S.C.102(b) as being anticipated by U.S. Patent No. 5,863,682 (Abe et al.).

As amended, independent Claim 1 is directed to a charged-particle beam exposure apparatus for exposing a member to be exposed to a charged particle beam with a pattern. The apparatus comprises storage means for storing a plurality of data for controlling a dosage of the charged particle beam in accordance with an irradiation position of the charged particle beam on the member to be exposed. The data depends on a parameter representing at least one of an underlayer condition of the member to be exposed, a resist material, a forward scattering radius, and a backward scattering radius, and the plurality of data are generated based on each different value of the parameter. The apparatus also comprises selection means for selecting any one of the plurality of data stored in the storage means, and exposure means for controlling the dosage of the charged particle beam on the basis of the data selected by the selection means, thereby exposing the member to be exposed with the pattern.

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By virtue of the foregoing features, it is possible to control the dosage of the charged particle beam based on the appropriate data selected from the generated plurality of data, and to perform the exposure in consideration of various conditions.

Support for the amendment to Claim 1 is found at least in Figs. 9-13 and in the specification at page 2, line 26, and at pages 28-36.

Abe et al. relates to a method for dividing a drawing region into a plurality of stripes, and drawing sequentially for each stripe. In the Abe et al. method, one datum for proximity effect correction is corresponded to each strip, and is not selected from a plurality of data so as to control the dosage in accordance with the underlayer condition of the member to be exposed, the resist material, etc. Col. 39, lines 4-10 of Abe et al. refers to a control circuit section 70 shown in Fig. 28, wherein an auxiliary region separating circuit 75 is replaced by a drawing pattern data selection circuit 79 that selects data from those stored in the buffer memory 71 and transmits them to the pattern data memory 77. However, nothing has been found, or pointed out, in Abe et al. that would teach or suggest a plurality of data generated based on each different value of a parameter representing at least one of an underlayer condition of the member to be exposed, a resist material, a forward scattering radius, and a backward scattering radius, and selecting any one of the data for controlling a dosage, as recited in Claim 1.

For these reasons, Claim 1 is believed clearly patentable over Abe et al..

Amended independent Claims 15 and 22 recite features that are similar in many relevant respects to those of Claim 1, and also are believed to be patentable over Abe et al. for substantially the same reasons as is Claim 1.

Independent Claim 3, as amended, is directed to a charged-particle beam exposure apparatus for exposing a member to be exposed to a charged particle beam with a pattern. The apparatus comprises first storage means for storing reference dose data of the charged particle beam in accordance with an irradiation position of the charged particle beam on the member to be exposed, and second storage means for storing a plurality of control data for performing proximity effect correction in accordance with the irradiation position with respect to the reference dose data. The control data depends on a parameter of a proximity effect correction calculation, and the plurality of control data are generated based on each different parameter. A selection means selects one of the plurality of control data stored in the second storage means, and an exposure means performs a proximity effect correction for the reference dose data on the basis of the control data selected by the selection means, thereby exposing the member to be exposed with the pattern.

A notable feature of Claim 3 is the generating of a plurality of control data to reference dose data, based on each different parameter of a proximity effect correction calculation. The apparatus of Claim 3 makes it possible to perform processing for a proximity effect correction based on appropriate control data selected from the generated plurality of control data. For example, based on the underlayer condition of the member to be exposed, the resist material, etc., inputted from an external terminal, the appropriate control data for processing for proximity effect correction can be selected from the plurality of control data. The relationship between the appropriate control data and the plurality of control data is expressed as 1:N (plurality).

The amendment to Claim 3 is supported at least in Figs. 9-13 and in the

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specification at page 2, line 26, and at pages 28-36.

Some of the teachings of Abe et al. were discussed above. In Abe et al., control data and pattern data for exposure are generated. The control data and the pattern data correspond to each divided stripe which should be exposed. The relationship between the control data (the pattern data) and each stripe can be expressed as 1:1. Therefore, in a case where each stripe is specified, control data corresponding to the stripe only is determined. Though the plurality of control data corresponding to the plurality of divided stripes are generated in order to draw the whole drawing region, each control data of Abe et al. cannot be selected like in the claimed invention. Indeed, nothing in Abe et al. would teach or suggest generating a plurality of control data in the manner recited in Claim 3, based on each different parameter of a proximity effect correction calculation, and selecting one of the control data for performing the processing for proximity effect correction, as recited in that claim.

For these reasons, Claim 3 is believed clearly patentable over Abe et al..

Amended independent Claims 9, 17, and 23 each recite features that are similar in many relevant respects to those of Claim 3, and also are believed to be patentable over Abe et al. for substantially the same reasons as is Claim 3.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another

of the independent claims discussed above and are therefore believed patentable for the same reasons as are those independent claims. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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